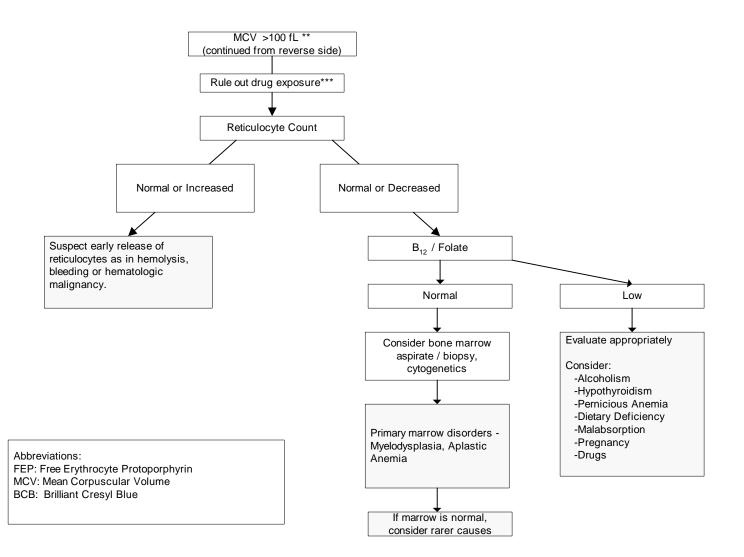
## FOR EDUCATIONAL PURPOSES ONLY

## **Laboratory Evaluation of Anemia in Adults**

Washington State Clinical Laboratory Advisory Council

Establish that anemia is present after correlation with history and physical The individual clinician is in the best position to exam: determine which tests are most appropriate for Hemoglobin Hematocrit a particular patient. <12 gm/dl Female: <35 L/L Male: <13 gm/dl <40 L/L If peripheral smear is not Peripheral Smear Review Specific definitive diagnostic findings/clues Perform appropriate available OR No specific present, e.g. HgbS, C crystals, schistocytes, confirmatory tests definitive diagnostic evidence of myeloproliferative disorders, findings present myelofibrosis, early release of reticulocytes. MCV <80 fL MCV (80 - 100 fL) MCV >100 fL Reticulocytes (see reverse side) Ferritin normal/high normal/high low high normal Increased Normal or Decreased Serum Iron normal/high high low low normal TIBC normal normal/low low normal high Post-hemorrhagic Hemolytic % Saturation normal low low hiah normal Anemia Anemia Screen for renal, hepatic Serum Iron and endocrine disease FEP (optional) normal high high abnormal normal Anemia of Anemia of Endocrine Negative Normal or Liver Renal Low Disease Screens Hiah Disease Disease Heterozygous Sideroblastic Hemoglobinopathy Thalassemia Suspect Iron deficiency anemia or Thalassemia inflammation anemia (look (perform (perform for source of hemoglobin corroborate by Consider bone hemoglobin electrophoresis, patient history bleeding) marrow -Hypothyroidism Anemia of electrophoresis. Bone Marrow Aspiration Early iron BCB & Hgb A2) examination -Hyperthyroidism chronic BCB & Hgb A2) & Biopsy deficiency -Addison's Disease disorders -Eunuchoidism -Panhypopituitarism 'Masked' Dyserythro-Myelo-Hypoplastic Megalo-Infiltration dysplastic poietic Anemia blastic Anemia Anemia Anemia -Leukemia -Myeloma -Myelofibrosis -Metastases



- \*\*Artifactual macrocytosis, determined by automated counters, may be caused by cold agglutinins, hyperglycemia, marked leukocytosis, RBC clumping, intracellular hypersensitivity.
- \*\*\*Some drugs that may cause macrocytosis: alcohol, chemotherapy drugs, zidovudine, anticonvulsants, oral contraceptives, triamterene, sulfasalazine, sulfamethoxazole, trimethoprim, colchicine, PASA, neomycin, nitrous oxide

## References:

- 1. Beuerlein, Frank. Testing Strategies for Anemias. Laboratory Mangement. December 1988.
- 2. Lee, G. Richard, Bithell, Thomas C., Foerster, John, Athens, John, Lukens, John. Wintrobe's Clinical Hematology, Edition 9, 1992.

Originally published: October 1999

Reviewed: October 2001 (no changes made)